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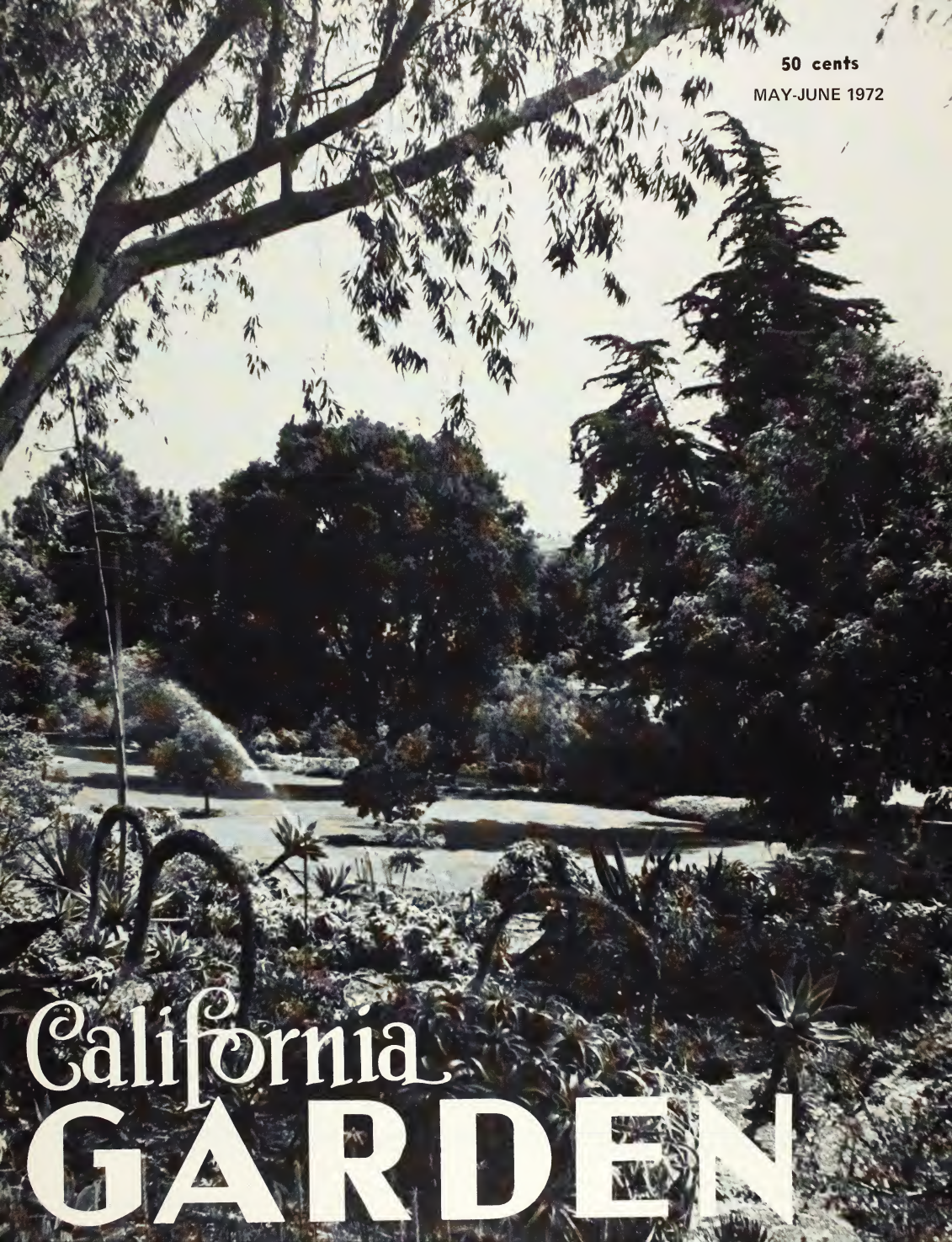

California GARDEN

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Don Diego

(Tom Hernandez)

June 27
- July 9

SOUTHERN CALIFORNIA EXPOSITION DEL MAR

Letter from the President . . .

IT IS A PLEASURE TO INTRODUCE OUR NEW EDITORS , JAMES LaMASTER AND BILL GUNTHER.

JAMES LaMASTER , WHO MAJORED IN ENGLISH LITERATURE , HAS A BACKGROUND IN TEACHING . HE IS AN EXPERIENCED WRITER, RAISES PRIZE-WINNING COCKER SPANIELS AND IS A VERY KNOWLEDGEABLE GARDENER . HE ALSO IS EDITOR-DESIGNATE FOR THE SPURIA IRIS SOCIETY NEWSLETTER.

BILL GUNTHER IS A RETIRED NAVAL AVIATOR . HE PLAYS CELLO IN THE LA JOLLA CIVIC ORCHESTRA AND HE HAS AN EXTENSIVE GARDEN IN DEL MAR WHICH FEATURES LILY PONDS, IRISES, AND ROCKWORK . HE ALSO IS EDITOR FOR THE LOCAL REGION OF THE THE AMERICAN IRIS SOCIETY.

JIM AND BILL ARE WELL QUALIFIED TO TAKE OVER THE WORK ACCOMPLISHED DURING THE PAST TWO AND A HALF YEARS BY OUTGOING EDITORS BARBARA JONES AND GRACE BROPHY . THE SAN DIEGO FLORAL ASSOCIATION IS GRATEFUL NOW, AS IN THE PAST, FOR HAVING EDITORS WHO ARE COMPETENT TO MAINTAIN THE TRADITIONAL EXCELLENT QUALITY OF THE CALIFORNIA GARDEN MAGAZINE.

Beverly Kulot

BEVERLY A. KULOT
PRESIDENT, S.D. FLORAL ASSN.

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DAYTIME SCENTS

GEORGE JAMES

HAVING DISCUSSED PLANTS with scented evening flowers and plants with scented foliage, we shall conclude this series with day-flowering plants with scented blossoms.

CARISSA GRANDIFLORA, "Natal Plum" is a widely used and satisfactory landscape shrub in the San Diego area. It flowers the heaviest during the summer, but may have some flowers all year long. The flowers are white, somewhat star shaped, and have a pleasant, sweet odor. There are other varieties of *Carissa*, but none flower as freely as this, so their fragrance is less.

CITRUS VARIETIES: Either the dwarf or the standard size flower abundantly in their own season, and their flowers have a pleasant odor. The majority of citrus varieties develop into attractive trees or shrubs and often can be used as part of the landscape. Thus, they accomplish several functions. The odor of the flowers, the fruit crop and the value of the foliage in the landscape all are beneficial.

GARDENIA JASMINOIDES 'Mystery' must be included in any list of plants with a delightful scent. This has large flowers, four to five inches across, white in color, and heavily scented, which are on the plant from May until September. *G. veitchii* is similar except the plant, foliage, and flowers are smaller than those of Mystery. *G. jasminoides stricta nana* has the longest name, and is the smallest plant. It grows about a foot in height and spreads about two feet across, and has very small flowers with the delightful scent. (Gardenias have special requirements for successful growth, and an article dealing with their needs is included in this issue.)

HELIOTROPIUM ARBOREXCENS used to be a favorite in Grandmother's garden for the delightful odor of the flowers. Plants grown from seed will have flowers from white to purple in color, while "Black Beauty" is a deep violet color. No matter what color the flower, they all will smell heavenly.

TRACHELOSPERMUM JASMINOIDES is in some references called *Rhynchospermum jasminoides* and has the common name of "Star Jasmine". The plant is a slow growing vine, but may be pinched to form a bush. It may be used as a vine, shrub, ground cover, or grown in a tub. The foliage is dark green and dense, and clusters of very fragrant white flowers cover the plant from April through July. There may be a scattering of flowers later in the year.

TERNSTROEMIA GYMANNTHA, or *T. japonica* in some sources of information, will grow in the sun in the coastal area, but is most often used as a shade plant. Young leaves are tinged with red and purple shades, and the mature leaves are lusterous. A close relative of the camellias, it requires similar soil and care. It produces cream colored flowers in July and August which are strongly fragrant. It is suitable for tub culture.

PHILADELPHUS MEXICANUS, "Mexican Syringea",is a large sprawling shrub which can be trained as a vine. The main crop of flowers are creamy-white during late winter and spring, with a possible second crop in late summer. The flowers have a very strong fragrance. It was once a very popular plant in San Diego, but now it is seldom seen in nurseries.

JASMINES are a family of plants which have several members noted for their fragrant flowers. JASMINIUM GRANDIFLORUM or "Spanish Jasmine" is a vine which produces white flowers in the summer. J. HUMILE, "Italian Jasmine", is a mound-like bush which can be trained into vine form. It has bright yellow flowers in the late summer and fall. J. MULTIFLORUM, "Pinwheel Jasmine", has white blossoms during spring and summer. J. NITIDUM, "Angel Wing Jasmine",has purple shaded buds which develop into white flowers. It needs a great deal of heat and it is necessary to plant it in a warm place for best flower production. J. POLYANTHEMUM is a vigorous vine which starts to flower in February and continues through the summer. The flowers are white on the inside and rose colored on the outside. J. SAMBAC, "Arabian Jasmine",is a tropical shrub and has requirements similar to those described for the *Plumeria*. "Grand Duke" is a double flowered variety and "Maid of Orleans" is a semidouble variety. In this area these will flower with white, very fragrant flowers, during August, September and October. These flowers are used to scent jasmine teas and for leis in Hawaii. Several flowers, cut and placed in a vase, will scent a room pleasantly.

Annuals, perennials and bulbs can be sources of odor, often combined with existing plantings. AGERATUM, when used in a mass, such as a border, is sweetly scented. ALYSSUMS provide fragrance, and are useful to seed over sprouting bulbs, providing color and coverage when the bulbs are drying off. WALL FLOWERS are old fashioned, are not carried in many nurseries, but may be started from seed. This perennial needs cutting back after flowering. Often there will be many volunteer plants among the old. Their scent, once enjoyed, will remain with you.

Some bulbs whose flowers are pleasantly scented are NARCISSUS in various colors; TUBEROSES with a very strong, pleasant scent; and the FREESIA varieties that have not been too highly hybridized.

THE QUAIL GARDENS STORY

JULIA S. von PREISSIG

This landscape scene was taken from the edge of the chaparral area of Quail Gardens. The vista is southeasterly through desert plantings.

IN 1957, Ruth Baird Larabee donated her twenty-six acre estate in Encinitas to the County of San Diego and a dream was born—to have a beautiful botanic garden for the benefit of everyone.

Little by little, this dream is taking on the form of reality through the cooperative efforts of the dedicated volunteers who form the Quail Gardens Foundation, Inc. and the staffs of the County Park and Recreation Department and the Park Development Division, with the support of friends and the general public.

This has been a step-by-step process to build a sound and enduring example by which to develop gardens worthy of our area, so favored for the luxuriant growth of plants and flowers. Before any action was taken, outstanding people with such general assets as knowledge of growing conditions in this area, experience with other botanic gardens, skills in community organization, etc. were called together. They agreed that this would be an excellent location for a botanic garden. With a long-range view and great attention to detail, the Foundation drew up by-laws, became incorporated in the State of California and entered into a formal agreement with San Diego County.

In the early years, the planting progressed slowly while the county installed major necessities such as roads, parking lot and major water lines. Recently, through the generosity of the Ecke family, four adjoining acres have been added to the gardens. Standing on this ground is a large building constructed some years ago through civic effort. This is to serve as headquarters for the Foundation.

Now that the groundwork has been laid, efforts can be concentrated upon the trees, shrubs and flowers. The painstaking studies and planning are showing up in rare and lovely flowers, in bright and colorful vistas, in tree-shaded walks and fragrant nooks. The native quail, hidden at noonday in the chaparral with other wildlings, come out at dusk to feed.

The educational and scientific functions of a botanic garden are being developed through such means as labeling of plants, maintaining an herbarium of plant specimens native to the premises, systematizing plant records and exchanging information and seeds with other botanic gardens. A botanical library is maintained by the Foundation. Groups

of people of all ages are led through the gardens on guided tours. Camera and painting classes are conducted on the grounds. Visitors from every state in the union and from many foreign countries come to wander and enjoy the gardens. The entrance is open every day of the year, and admission is free of charge.

The Foundation spreads information about the Quail Gardens through its own publications and those of others; through free slide programs for groups; through displays at public affairs and through person-to-person contacts. The Foundation raises funds to support its work through dues, donations and fund-raising events. Dues are $5 for Individual Memberships and $10 for Society Memberships. Memorial gifts are gratefully accepted and carefully recorded. All checks are to be made out to Quail Gardens Foundation, Inc. and sent to the Financial Secretary, Mrs. Albert R. Seibert, 745 East Fifth Avenue, Escondido, California 92025.

In the space of a page, the dedicated efforts and gifts of countless volunteers cannot be individually recorded. With that in mind, the Quail Gardens Foundation and the San Diego Floral Association have joined forces to produce this special issue of CALIFORNIA GARDEN. This issue is an expression of appreciation to organizations and individuals, lay people and professionals, who have poured time, skills and resources into the creation of a lovely, rustic garden with educational and scientific value; this issue is also an invitation to those not yet familiar with the project to join in the vital, satisfying work of contributing to the further development of Quail Botanic Gardens.

Julia S. von Preissig

AS A CHILD, Julia Sherman spent many happy summers on the prairies of Wyoming, some fifty miles north of Cheyenne, where she had been born.

In this ever-blustery area of sagebrush and prairie dog mounds, brightened only by an occasional cactus blossom, how could she have visualized herself collecting bromeliads from the lush cloud forests near Guatemala, taking in the absorbing sessions of Flora Pacifica on Oahu, or photographing the unique botanic gardens of Estufa Fría in Lisbon to share her enthusiasm for tropical and subtropical plants?

In fact, for many years, her botanic interests lay dormant. After graduating from high school, she moved with her family to Los Angeles, where she attended Chouinard and Otis Art Institutes, and then spent a year in Europe continuing her art education, specializing in frescos while in Paris. Returning home, she worked for a large mural decorating firm for ten years, participating in the decorating of many outstanding buildings throughout the southwestern United States.

In 1934, she married Mitchell James von Preissig and had two sons: Roger and Warren, both now Stanford graduates who have established homes of their own.

While her sons were growing up, Mrs. "Von" devoted herself to community betterment. She became an Honorary Life Member of PTA, Honorary Life Member of the Community Coordinating Councils of Los Angeles County, and President of the State of California Community Coordinating Councils.

From 1947-67, she was active in the development and management of the family subtropical plantings and avocado grove in Vista, where for many years she served as a Commissioner of Parks and Recreation, working mightily for environmental conservation long before ecology became a general by-word.

When Mr. von Preissig died, she moved to San Diego, where she is busy twenty-six hours a day with her "four" grandchildren: two girls, a boy, and Quail Gardens Foundation, Inc.—of which she has been President since 1967.

Sue Bachrach, Librarian
Quail Gardens Foundation, Inc.

CACTUS or EUPHORBIA??

PHYLLIS FLECHSIG
KARL FLECHSIG, photos

QUAIL GARDENS CONTAINS some remarkable desert plants, among them Euphorbias and cacti. Many visitors have trouble telling one from the other, and no wonder, for both may have heavy, thick, succulent stems, both may lack leaves, and both may assume the same candle-like shape. But the two groups are not at all related; they happen to have evolved similar shapes in response to similar environmental conditions, an example of convergent evolution. Succulent plants like these are built to resist drought, and because leaves tend to lose precious moisture, plants that must preserve moisture have tended to become leafless.

A good way to recognize the difference between a Euphorbia and a cactus might be to poke a hole in one or two—but do not try it on any plant but your own!—and the one that exudes a thick, white latex-like sap is the Euphorbia, for this latex is a characteristic of the whole genus. In some, the sap is caustic or even poisonous. In the upper picture are shown two kinds of Euphorbias growing at Quail Gardens: The shorter of the two, the many-stemmed plant in the foreground, is *Euphorbia canariensis*, a native of the Canary Islands, as the name indicates. The taller plants in the background, also with many stems, are a group of the tree-like *Euphorbia ingens*, a native of the southern half of Africa, from Kenya to Natal.

The large specimen in the other picture is a cactus, one of the general types known as prickly pears on account of their edible fruit. This particular one is probably a hybrid known as *Opuntia ficus-indica*, and is not especially prickly, though many others of its tribe are very heavily armed indeed. Plants of this sort were widely grown for their fruit in Mexico even

before the Spanish conquest, and have now been naturalized in many other parts of the world as well, such as the Mediterranean region and Africa.

Outer shape is never the criterion for deciding plant relationships. What is important is the structure of flowers and fruits, and here the Euphorbia and cactus families very decidedly part company. For while cacti generally have a showy flower with many petals, no bracts, and no flowerstalk, Euphorbias have a complicated and usually inconspicuous flowering structure called the cyathium, unique to the family. It may be on a stalk, which in some species remains on the plant as a spine long after the flower is gone; it may have large, colorful bracts, which are really modified leaves. The most familiar example of the latter is the Poinsettia, *Euphorbia pulcherrima*, which is a true Euphorbia, though a non-succulent one.

The fruits of the two plant familes are quite different, too. The Euphorbias have a three-chambered capsule with one seed to a chamber, while the cactus fruit is not divided in any such way, and always has a large number of seeds scattered at random throughout the pulp of the fruit.

The succulent Euphorbias come in a fantastic variety of shapes and sizes, from the little round "baseball plants", *Euphorbia obesa*, to forty foot trees. Cacti, too, come in sizes from very small to very large—the saguaro is an example of a tree-sized cactus—but their shapes are not quite as bizarre as those of some Euphorbias.

Good drainage is a necessity for growing members of either group successfully. Euphorbias cannot stand much frost, and therefore must stay near the coast in southern California; cacti do well in all parts of the Southwest. Small species of both make good house plants in a sunny exposure. They suffer from few pests. Euphorbias in particular are not very tasty to insects, though nematodes may damage them. Keep them drier during colder weather, and let plants dry out between waterings the rest of the year. A little neglect suits all these plants very well.

Phyllis Flessig is a tour guide at Quail Gardens. She raises cacti and succulents in her home garden. Karl, the filial part of this mother/son team, is a student at San Dieguito High School where he is a photographer for the school paper.

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FLOWERING TREES

ELIZABETH CHAPMAN

AMONG THE UNUSUAL flowering trees to be seen in Quail Gardens at this time of year are the coral trees. There are three different species: *Erythrina americana, Erythrina caffra* and *Erythrina lysistemon.* The unusual characteristic of these trees is that the coral-red blooms appear at the end of naked branches before the leaves develop in the spring.

The *Erythrina americana*, a native of Mexico, is situated outside the walled garden on the south side. This tree has a shorter trunk than the other two species of coral trees, and its naked branches make an interesting structural pattern against the old wall.

The larger *Erythrina caffra,* Kaffirboom coral tree, is found on the left side of the path leading to the *Puya* section of the garden. This tree can grow to forty feet in height with an even greater spread. It is covered with a mass of deep coral blossoms and is a beautiful sight when viewed from the top of the steps leading from the lawn area. When young, thorns cover the wood of this tree but they disappear with maturity. The scars of thorns still can be seen on this specimen.

Erythrina lysistemon is the earliest to bloom of the coral trees, beginning in December and continuing until May. This fine specimen has a pattern of many large thorns on its trunk and can be found in the lawn section between the rangers' houses. This tree is best appreciated from a distance, for only then does one gain an idea of the size of the tree and its profusion of blossoms.

In this section and next to the *E. lysistemon*, is the latest blooming of the acacias, *Acacia verticillata* or Prickly Acacia. The pale yellow, inch long flowers make a pleasant contrast with those of the coral tree. The leaves of this acacia are needle-like and resemble those of a conifer.

Another most interesting and rare tree in Quail Gardens is the Mexican Handflower Tree, *Chiranthodendron pentadactylon*, which blooms from May to October. From the waxy brownish-red flowers protrude the stamens, a scarlet hand shaped structure; from the base of the fingers emerges the style that is shaped like a thumb. The large leaves are shaped like those of a sycamore and are interesting to look at not only because of their shape but also because of the rust colored hairs that cover the undersides of the leaves. This tree has medicinal properties, and the Mexicans make a tea from the flowers that is used for treatment of the heart. It is located in the Palm Canyon section of the gardens.

While in the Palm Canyon area, the visitor should not miss the dainty blossoms of the Lily-of-the-Valley Tree, *Clethra arborea*, from Madeira. This small, twenty feet tall with a ten feet spread, tree produces fragrant white flowers, just like those of the perennial Lily-of-the Valley, from June to August. The glossy bronze-green leaves also are attractive.

CORAL TREE, *Erythrina lysistemon*

For those who like lavender-blue flowers, there are two large *Jacaranda acutifolia* trees (Green Ebony) near the registration booth. These natives of Brazil are briefly deciduous. After dropping their ferny leaves in February or March, they produce clusters of lavender-blue trumpet flowers in May and June. The new leaves appear before the blossoms have completely withered.

A visit to Quail Gardens is time well spent—even if you only have time to tour the flowering trees.

Elizabeth Chapman is tour guide at Quail Gardens.

CALIFORNIA POPPIES

MIKE DOUGLAS

AMONG THE NATIVE members of the poppy family frequently grown in California gardens are the Matilija and Bush Poppy. Not so conspicuously cultivated but more frequent is *Eschscholtzia californica*, the California Poppy. This annual, occasionally biennial, can often be found growing in well drained, sunnier portions of the garden. If not planted intentionally these plants usually can be traced to nearby hillsides where *Eschscholtzia* is growing. The appearance of the plants can then be contributed to the elements or birds.

It is recommended that poppy seeds be sown in the fall to take advantage of the winter rainfall. The seeds are often planted over steep slopes which are difficult to water, but a minimal amount of moisture is required to germinate the seeds and maintain the plants. Unless the winter is especially dry, no artificial watering is needed. When planted in well drained soil in a location which gets a considerable amount of sun, the only care these plants require is an occasional weeding. The larger, more durable plants and weeds will smother the California Poppies.

The genus *Eschscholtzia* contains several species and forms, but the names of these remain in confusion awaiting more careful study. Intergradation between forms is so extensive that often only the characteristics of the genus are recognizable. These forms all have the same flower coloration, excepting hybrids and mutations. However, the leaves are variable in pubescence, and the cultural habits of each form vary.

The California Poppy is such a versatile plant that it is at home in a bed of pinks, snapdragons, irises, or cacti and succulents. Another setting for which these plants are useful is in the rock garden. Their sparse root system is completely capable of anchoring in shallow soil or between rocks.

California Poppy seeds are so inexpensive that an easy and practical method of starting them in your garden is to broadcast the seeds over the garden area. They do not need to be covered or buried. After the fern-like foliage sprouts thin out those which are too close to other garden plants. Most poppies are notoriously hard to transplant so do not waste time resetting the seedlings. The difficulty in transplanting is one reason why California Poppies are not "pony packed" at your favorite nursery. Once these poppies are established in your garden, they will reseed themselves.

If you do not presently have some California Poppies in your garden, try them. You'll like them!

California Poppies with Toadflax (*Linaria*)

Mike Douglas is an honor student at La Jolla High School and Vice President of the San Diego Chapter of the Calif. Native Plant Society.

CHAPARRAL

HELEN WITHAM

ANNE GALLOWAY, photos

A SIGHT TO BEHOLD in the western part of San Diego County every spring is the flowering of *Ceanothus*— white ones at Quail Gardens, Torrey Pines Park, and Balboa Park's Florida Canyon; blue ones, white ones and lavender ones a little farther inland and a little later in the season. The bluest of all, *C. cyaneus,* Lakeside Lilac, is seen at Silverwood and on neighboring hillsides. Then in higher mountains, white ones again, along with two blue-flowered kinds. They all smell like warm honey!

Nine species altogether are spread over the chaparral-covered hills and mountains, in association with Scrub Oak, Manzanita, Chamise, Mountain Mahogany, Toyon and Yucca.

What is this chaparral that covers so many thousand hills and mesas in western California? The question should read: "What is a chaparral?", since we have adopted the Spanish word meaning "thicket of chaparros", or "place where chaparros grow". A shrubby plant called "chaparro" in Spain is similar to our Scrub Oak, the well-known member of the chaparral community.

We have applied the name chaparral to a vegetation type consisting of a dense growth of twiggy evergreen shrubs of more or less uniform height. Their interlacing branches, covered with small, firm, thick leaves, make the chaparral almost impenetrable. A stand of chaparral may consist almost entirely of one kind of shrub (most often Chamise or Manzanita) or it may be a mixture of half a dozen kinds, including Scrub Oak.

Chaparral is a vegetation type that can flourish in climates such as ours, with cool winters and hot dry summers. The twelve to twenty-five inches of rainfall required by these plants come in winter and early spring—then no more until November or December here in the extreme southwest corner of the state. These are plants that can survive the long summer drought, and most of them can survive periodic fires. Their heavy roots or burls may live for decades or even centuries, sending up new shoots after being burned to the ground. Some kinds, while individuals are killed by fire, survive as species by heavy seedling germination following a burn.

At Quail Gardens the chaparral along the north boundary of the property, some seven or eight acres, is to be preserved as a home for birds and other wildlife, more or less as it stands. (Do the foxes still den there, I wonder? Forgot to ask.) A few additional trees and shrubs are being added around the perimeter; I noted Torrey Pines and Fremontodendron.

Predominant plants in this chaparral are Chamise (*Adenostoma fasciculatum*) and the Coast White Lilac (*Ceanothus verrucosus*). Scattered shrubs are Toyon (*Heteromeles arbutifolia*), Coast Manzanita (*Xylococcus bicolor*), Black Sage (*Salvia mellifera*), Spice Bush (*Cneoridium dumosum*), Mohave Yucca (*Yucca schidigera*) and a few exceptionally graceful Mountain Mahoganies (*Cercocarpus minutiflorus*). Adding color around the edges are Monkeyflowers (*Mimulus*), Nightshade (*Solanum*) and Deer Broom (*Lotus scoparius*).

The chaparral on the upper level is open enough to lend itself to exploration. In most years the openings are carpeted with the blue, yellow, pink, white and lavender of dozens of annuals, but this driest spring in history has allowed very few to appear. However, the rocks themselves are colorful. The hardpan is covered with lichens and mosses in green, gray, chartreuse and orange. Please walk carefully, and do not go near the edge of the cliff. This grand canyon has crumbling walls.

The chaparral area in the new addition south of the parking lot and driveway, if present plans mature, will be developed as a nature trail *cum* demonstration planting: keep the choice ones, add some different ones, and label everything. We need more of this kind of demonstration planting—one at Florida Canyon in the city, another somewhere in the mountains and maybe one in the desert.

Coast White Lilac, *Ceanothus verrucosus*

MATILIJA POPPY, *Romeya coulteri*

The Matilija Poppy pictured above is surely one of our most spectacular native flowers. In April, May, or June, depending upon spring weather, these showy flowers may decorate dry hillsides in the southern part of San Diego County, or bloom in large gardens here and there. I say "large gardens" because a clump of Matilijas is tall and wide—and gets wider every year. The planting established many years ago in Quail Gardens is of a particularly handsome strain which has tall vigorous plants with beautifully proportioned flowers of snow white with yellow-gold stamens.

THE DAWN REDWOOD

BILL GUNTHER

DURING THE FLEETING YEARS of our lives, we should reflect on how small is our perspective in the world's history. Christianity is less than 2,000 years old. The earliest writings of man are about 5,000 years old. In the history of the earth, man is just a Johnny-come-lately.

A hundred million years before the advent of the predecessors of man, and long before the advent of most contemporary higher animals and flowering plants, there already was abundant life on earth. That early life was relatively primitive. It included the dinosaurs, the mammoths, the sloths, the giant ferns and fungi and the Dawn Redwoods.

Since these special forms of life were both large and primitive, they could not readily adapt. When the environmental conditions of their habitat changed, they could not adapt to those alterations. Thus, they became extinct.

Study of fossils shows that 100,000,000 years ago the Dawn Redwood grew indigenously all the way across the North American continent. Subsequent environmental changes were so extreme that on this continent the dinosaurs and the Dawn Redwood died off long before any man came along to see them. Yet, modern man, from the study of fossil remains, speculated on how things looked on this earth when the dinosaurs were chomping on the Dawn Redwoods, and he realized the immensity of the volcanic upheavals and ice-age glacial action which exterminated that life.

Actually, through it all, the Dawn Redwood was not exterminated.

By rare chance, it happened that through all those millions of years there was a small isolated area in the remote regions of China which escaped the natural calamities which had exterminated the Dawn Redwoods over the rest of the world. In 1944, a Chinese botanist, Tsang Wang, explored that remote area, and there he came upon a tree which he never before had seen. He did not know what it was, so he sent branches, spores and seeds of it to scientific centers for identification. Those living tissues surprised the botanic world to the point of disbelief. Believable or not, it was true; Dawn Redwoods still were alive.

This discovery represented much more than the mere addition of another living species to the botanic lists. Far more than that, a living Dawn Redwood represented the only living representative of an entire genus otherwise extinct. That genus, *Metasequoia,* differs in many ways from the genus *Sequoia*, to which the two California Redwood species belong. To the unscientific viewer, the most apparent of the many differences is that the Dawn Redwood is deciduous, entirely leafless during the winter months.

Until 1944, botanists had seen only fossilized remains of the Dawn Redwood. News of the discovery of a living specimen was startling and exciting to them. One botanic journal editorialized that the world knew of "...no other plant or animal which has fought for so long to survive, and which is so perilously close to extinction." Botanic gardens and universities of the world clamored for Dawn Redwood trees for their collections. To meet the demand, the tree was intensively propagated, both from seeds and from cuttings, and within a decade the little trees were started across the temerate areas of both hemispheres. (The saplings understandably became rather confused when they were taken to locations south of the equator where the seasons are reversed, and where their leaf growth had to be readjusted accordingly.)

Thirty years ago, only a few Dawn Redwoods survived, and they occupied a "last stand" area only a few miles in diameter. Since then, with man's help, they have been proliferated and multiplied by the thousands, and they now are growing around the world. Thanks to the intervention of man, the Dawn Redwood no longer is an endangered species. In the history of the world, no other case is known of a tree which has been so widely distri-

buted in so short a time. The Dawn Redwood, a tree thought to have perished many millions of years ago, has achieved a world-wide renaissance.

In San Diego County, the best place to examine a large healthy Dawn Redwood is in the Quail Gardens, near Encinitas. There, a tall specimen reigns supreme in an open area near the information center. A photograph of that specimen in its dormant condition (February 1972) illustrates this article. To see that same specimen in full foliage, just as its ancestors appeared to the dinosaurs that chomped on them for lunch eons ago, make a visit to Quail Gardens soon.

When you first look upon that tree, *Metasequoia glyptostroboides*, remember that modern man has been on earth only a few thousand years, but that the Dawn Redwood with no perceptible evolutionary changes—is a survivor from prehistoric ages. In that perspective, it is truly awesome.

It also is conversation inspiring, so why not get one for your own garden?

For your Dawn Redwood, pick a planting spot which has good drainage, reasonably good soil and good exposure to sunshine. It should be watered weekly until it is well rooted and established; thereafter, a good soaking at monthly intervals will suffice. To avoid damage to the root system of your plant, the area adjacent to it should be mulched rather than cultivated. Any organic mulch would be suitable; pine needles, leaf mold, and fir bark are all recommended. Do not fertilize until the tree is showing good new growth after transplanting. Then, fertilize only sparingly. During the first year or two try to protect the new plant from the full force of the Santa Ana conditions by shading it and spraying it with water during those periods.

You can expect your Dawn Redwood to grow as much as three feet a year so long as its historical enemies do not come around. BUT if those natural enemies arrive; all is lost. Its natural enemies are: dinosaurs, volcanoes and glaciers.

BROMELIACEAE

MARY L. BIRCHELL
and
THELMA F. O'REILLY

THE GREAT TROPICAL family of flowering plants, *Bromeliaceae*, are all native to the Americas except for one West African species. Bromeliads are found growing in an arc west from coastal Virginia to Lower California, and south into central Argentina and Chile. Eastern Brazil contains the largest number of ornamental species.

Because of widely varied growing conditions in their natural habitat, bromeliads present an exciting challenge to collectors and growers. Some are terrestrial, growing in soil, or saxicolous, growing on rocks. Others are epiphytic, finding trees as their habitat. Collectors have found some species of *Tillandsia*-like *Vrieseas* growing on cacti.

A special botanic feature of Quail Gardens is the bromeliad planting of *Puyas*. It was started in the early 1950's by Mrs. Ruth Baird Larabee and included *Puya alpestris,coerulea* and an unidentified type.

Puyas grow into quite large showy plants with rosettes of long, stiff, spiny leaves. The yucca-like bloom spikes of the species in this garden are about four and one half feet high, bearing many open petaled, tubular flowers. The petals are electric blue and radiant, translucent green with pollen laden brilliant orange stamens.

In their native habitat *Puyas* favor regions in the middle and high Andes. They are xerophytic, hot and dry, in nature. The areas where they occur have similar growing conditions. The soil is usually a compound of clay, sand and pebbles with little nourishment, nutrients coming only from minerals. The plants are usually exposed completely to light. Rain is scarce. Moisture comes from nightly dew.

In cultivation *Puyas* are terrestrial, adapting to similar growing conditions as succulents. They require little water after being established. Excellent drainage is a must.

During the growth cycle offsets are produced from the mother plant resulting in a large clump. After blooming, the mother plant dies leaving the offsets to continue the life cycle. *Puyas* can be grown from seed, but it is a slow process.

The Puya Walk is south of the ranger house among the agaves, and northeast of the ranger house on the Puya Trail. It is Quail Gardens' hope to increase the *Puya* planting with other species.

While visiting Mexico in the spring of 1968, two members of the San Diego Bromeliad Society collected many bromeliad species. After importation into the U. S., the collection was temporarily cared for by Horace Anderson of La Costa Nursery.

A plot was designated in Quail Gardens for a bromeliad planting. Tree trunks were placed in an attractive arrangement to provide a new home for the Mexican species which were mostly *Tillandsias*. Being natural epiphytes, they were attached with moss and plastic coated wire. They acclimated quickly due to the moisture content of the coastal fog and air movement of the ocean breeze. Most of them have bloomed and produced offsets.

In the spring of 1969, Quail Gardens received many bromeliads which were collected in Peru by Dr. Alfred Lau. The caretaker of this shipment was Mr. Cleovis Hardin of Spring Valley, California.

This exciting collection of rare bromeliads caused so much enthu-

The dried bloomstalks of this Puya hint at the grandeur of the plant. The electric blue blossoms are most unusual.

A portion of the bromeliad planting at Quail Gardens.

siasm in the San Diego Bromeliad Society that the membership voted unanimously to send a team of workers to the Quail Gardens to create a "Peruvian Tree." Most of the plants are unidentified. As they finish flowering, an herbarium specimen is prepared and mailed to the world authority on *Bromeliaceae*, Dr. Lyman B. Smith, Senior Botanist, Smithsonian Institution, Washington, D.C., for identification. It is possible that the collection includes some of the *Tillandsia*-like *Vreiseas* from the xerophytic, deciduous forests in northern Peru.

By this time so much interest had been aroused in the bromeliad planting at the Quail Gardens that the society assumed the responsibility for its maintenance. Recently they completed the installation of a sprinkler and fogging system. This facilitates moisture control under adverse weather conditions.

The aim and purpose of the San Diego Bromeliad Society is to duplicate a natural environment for all types of bromeliads. The goal is not for individual show plants but ones that will flourish under cultivated conditions similar to those in their natural habitat, be it a jungle floor or tree top, coastal salt spray and sand, limited rainfall and thorny bushes of the Catinga region, or mountains of the Andes. The future holds tentative plans for a path leading through the bromeliad planting to give visitors the opportunity for closer observation of these exotic plants.

The society is grateful to individual members and the following nurseries for their contributions of plant material and supplies: Presidio Nursery, Talnadge Fern Gardens, and Seaborn's Del Dios Nursery.

Most bromeliads are easy plants to cultivate, surviving prolonged periods of neglect. Tender loving care and an effort to duplicate their natural growing conditions will result in a spectacular display of form, color and beauty.

Mary L. Birchell and Thelma F. O'Reilly are, respectively, President and Librarian of the San Diego Bromeliad Society.

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SUBTROPICAL FRUITS

ROSALIE GARCIA

THE QUAIL GARDENS FOUNDATION is planning a rare treat for the public in its planting of subtropical fruits on the western slope of the gardens. There are only a few trees now planted, some avocados and a macadamia. The lower slope is to have the rare and lesser known citrus, and the upper one will be planted to the subtropicals. When the Larrabees lived there this location was their avocado grove. This planting will go in over a period of years, and in many cases will be experimental. Subtropicals are the fruits that will stand little frost, and some will not take any. This location will be sheltered by a windbreak, already planted, of the Buckthorn family, *Rhamnus alaternus*, which will grow to ten feet of dense, fine leaved hedge. Hopefully there will be little of the type of winter of 1971-72.

Most subtropicals can be planted any time of the year, for they have a more continuous cycle of growth than our temperate zone fruits. The Foundation Planting Committee is competent and experienced: Mrs. Mildred Macpherson, Chairman; Mr. Nelson Westree, Mrs. Edward Owen and Mr. Ben Owen. Two have had nurseries which dealt in subtropicals, and the others have grown them on small estates. Since The Gardens are maintained by the County of San Diego, permission has to come from the Board of Supervisors, and the Committee is waiting for approval of the project.

Although southern California has the cool dry climate that is a natural for the subtropicals, only the avocado, citrus, and recently, the macadamia have caught on enough to guarantee a market and to inspire commercial plantings. Our adult population, largely from "Back East", grew up on apples, pears, peaches and sticks to them. Only the most adventurous will even taste a sapote, papaya or mango which appear in small amounts in our supermarkets. They have never seen any of them growing. This will be possible when the Quail Gardens orchard is established.

From Santa Barbara to the Mexican Border dedicated horticulturists have made small plantings of many of the exotic fruits. Today many private gardens and small estates have plantings, and there are a few of the more unusual trees in the commercial plantings of citrus and avocado.

The late Clifford Tanner of Rancho Santa Fe was one of the inspired and dedicated leaders who drew around him a group of enthusiasts who have small plantings in southern California. He did much in promoting the macadamia industry. He personally supervised the planting of one thousand acres of macadamia trees in Hawaii for Jimmy Stewart, the actor, in 1968. A visit to his Rancho Santa Fe home was a treat as he delved into his freezer and brought out a frosted lychee, guava, sapote or mango, all grown by him in his garden. He had learned that many of the subtropical fruits are best chilled, or semi-thawed, and most of them freeze well. This is a great advantage for the nature of many of these fruits is thin skins which deteriorate quickly after they are ripe.

The proposed list of subtropicals includes guavas: Red and Yellow Strawberry, Feijoa ; eugenias: Rose Apple, Jaboticaba, Surinamcherry; sapote; cherimoya; papaya; passion vine; kiwi vine; mango; lychee; longan; loquat; natal plum; and avocado.

Some of these are already growing in the gardens to be spotted around among the other plants. My personal theory is that many on this list will do better if they are planted separately in spots that have peculiar climates that suit them. On a walk through the gardens I noted loquat, pomegranate, kumquat, lemon, orange, natal plum, cherimoya, and a glorious old apricot tree in full bloom.

The natural subtropicals, those that were found originally growing wild in the cool, dry air of the tropical Americas and Mexico will thrive in a chosen location in our cool, coastal desert climate. Many—like the sapote, cherimoya, and some of the eugenias—will make tall trees (up to forty feet) with handsome, evergreen foliage. All of the guavas, not so tall, have glossy green or sort of smoky gray foliage which makes them as much ornamentals as fruit trees. The real tropicals that have been adapted to our climate, such as the lychee, papaya and mango need more protection, do not make such big trees, are equally ornamental, and should be in more gardens.

One of the fascinations of these subtropical trees is that there is blossom and fruit at all seasons, and often both are on the same tree. There are peak seasons, but they are not always at the same time each year.

The guavas are of the Myrtaceae family and are native of Brazil. The Red and Yellow Strawberry guavas are common in our gardens as ornamentals and grow with little care. Their fruits are edible when practically over ripened, but they are more usually used for jelly. The red flower is also edible.

Many of the hundreds of eugenias are edible, even our common hedge eugenia produces purplish, crisp fruits that are good to eat and make a beautiful jelly. The Rose Apple (*Eugenia jamba*) is a round yellow fruit that is valuable more for its fragrance than edibility. A bowl of them will perfume the whole house. The Jaboticaba (*Eugenia cauliflora*) will make a big tree and will have clusters of grape-sized black fruits growing

along the trunk and branches. The Surinamcherry (*Eugenia uniflora*) is one of the most ornamental shrubs. It has dark green, glossy foliage and clusters of deep crimson to purple fruits with a distinctive flavor, sweet-sour and spicy.

The green sapote is more familiar than most of the subtropicals, for it has adapted well to southern California. Because it will grow up to sixty feet tall, it is not fitted to small spaces. Once established, it needs no care and will live for years. It hails from Central American and Mexican slopes and is appreciated most by the people who come from those areas. Many that one sees are inferior seedlings that just came up. These bear the soft custard-like fruits that squash when they hit the ground and attract flies because of their sugar. Nurseries usually have the Sue Belle, a peach shaped green fruit that Mr. Tanner cultivated and introduced to San Diego County.

Many of the subtropicals are commonly called custard apple, such as the sapote and cherimoya, because of their soft flesh. A real natural for our cool, desert climate is the cherimoya which grows tall with handsome, dramatic foliage and artistically marked fruits as big as a cantaloupe, with a flavor not unlike a combination of banana and pineapple. It has a tougher rind than most of the tropical fruits and would ship well if a market could be established. This fruit is a rare find in our markets.

We are finding more and more of the Hawaiian papayas in our markets, and to see a papaya growing will be a treat. They must grow in plots of several trees so they can pollinate each other. Whether it is warm enough in Quail Gardens has to be explored, for they are real tropicals and need the warm humidity of climates like Brazil and Hawaii. We see the very large melon-sized variety in Tijuana, by the truck load. They are not so sweet as the small ones from Hawaii, but when they are mushy ripe, they are also delicious. These are another of the fruits that grow on the trunk of the tree. They are of the same family as the pumpkin and melon, and are used like these in the tropical countries. Even though a papaya grows up to twenty-five feet, it is a herbaceous plant and not a real tree. It grows very fast and will start producing fruit in a few months. Even the seeds are edible, having a spicy flavor. As a breakfast fruit or a dessert, the seeds are left in the fruit, adding a contrast to the often cloying sweetness of the flesh. There is an active enzyme similar to animal pepsin which aids in digestion. Our familiar meat tenderizer is made from the juice. Baking a tough roast with slices of the big papaya will make it tender, or wrapping meat or fowl in the leaves overnight will tenderize it.

The passion vine (*Passiflora quadrangularis*) is a relative of the papaya, but is a woody vine, which will climb on trellises in the Quail Gardens planting. The fruit is occasionally in our markets and will be recognized as an oblong, greenish-yellow fruit, not unlike a squash, with a hollow center filled with a mass of purple sweet pulp mixed with flat seeds. Mostly it is juiced and is the special flavor in many tropical juices.

Another vine to be included in the planting is the "Kiwi". Mostly the fruit is imported from Australia and New Zealand where it is native. It appears at times in our markets resembling a fig with a brown fur coat.

Mr. Tanner spent much time adapting a mango that will fruit in this area. It took some doing for the mango is a real tropical and one of the oldest known cultivated fruits. In India it was so important, as far back as the 1550's, that the emperor planted over one hundred thousand trees. It grows in all the tropical regions of the world and is one of the staple fruits just as our apple is to us. Enough mangos are grown in southern Florida to be a commercial crop, but they are an exotic in our climate. It belongs to the Anacardiaceae family to which the cashew and pistachio nuts, poison ivy and the pepper tree belong. The edible mango is of the genus Magnifera and is likely a hybrid between two or more species. Its long shiny leaves and beautiful foot long panicles of pink flowers several times a year make a handsome tree, often thirty feet tall in the Tropics but smaller here. The fruits I saw growing in Mr. Tanner's garden were medium sized pinkish-yellow, but there are many sizes and varieties. A mango must be at peak ripeness to be good, or its resinous property will taste like turpentine. Like bananas, they are best harvested when green and allowed to mellow. There is a peachy taste in the soft and juicy yellow to orange flesh, with a flavor that is only mango. In the Tropics it is the "King of Fruits".

The lychee (litchi or leechee) of the Soap Berry family makes a beautiful tree that grows up to forty feet tall in its native habitat of tropical China where it is most revered. We often get the fruit dried from Chinese stores in the form of lychee nuts. These are not bad, but the fresh plum sized fruits with a hard, brittle and rough red covering are an experience in taste. The flesh is translucent much like a grape. We most often get it canned and serve it as sauce over ham which is a gourmet dish.

The longan (*Euphoria longan*) is of the same family as the lychee, has yellow flowers and a thin yellow shell over the fruit. It is not quite so ambrosial as the lychee.

The loquats, natal plums, and avocados which will be included in the planting are familiar to us, but the varieties there will be uncommon.

Watch this orchard grow. It will be unique in southern California. Where else can one see all of these exotics planted in one area? Maybe it will encourage us to expand our tastes to include more of what will grow here. We have chosen a subtropical climate for our home; why do we persist in eating fruits of temperate climes?

AZALEAS

ROSALIND SARVER

AZALEA LOVERS! ARISE and hurry to visit the lovely azalea embankment in Quail Gardens. It is located near the information booth. Even though you may have missed part of the blooming season, you will be delighted with the fine, healthy looking plants, now in their sixth year. They are a real tribute to the knowledge and devotion of "PJ" Miller and his able assistants. The plant growth and color compares favorably with settings seen in more congenial climates. Our hot summer aridity, poor quality water, and alkaline soils have always made the growing of these rather shy aristocrats of the garden very difficult for most gardeners.

Mr. Miller has overcome these obstacles largely, by furnishing their main requirements: (1) excellent drainage on a bank, (2) filtered sunlight from beautiful old cork oak trees, (3) acid planting medium, made by rototilling in a mixture of one-half peatmoss and one-half ground fir bark. The first three years the plants were furnished with an organic fertilizer, applied three times a year, in April after blooming, June and August. A 5-10-10 formula with trace elements is now used for feeding.

A very helpful misting system has been installed that is used several times on hot afternoons at thirty minute intervals. Delicate azalea roots cannot transfer the needed moisture to the leaves fast enough without this timely help. (A misting system is not difficult or expensive for the home gardener to install. Consult your garden center or pipe supply house.) A heavy irrigation is given about every six weeks to help leach out the mineral salts, since azalea roots must have an acid condition to absorb their food.

Much thought was given to which varieties should be planted in order to have a succession of color from March, or earlier, into May. The chosen varieties give a good representation of the various shrub forms to be found in azaleas. It is of particular interest to note the Glen Dale hybrids, hybridized by the U.S. District Attorney at Beltsville, Maryland, which were developed to withstand colder climates.

A map is available at the office, in case you cannot read the labels, which have a way of becoming illegible. It will take much hunting to duplicate some of these varieties since many are not typical plants for this area, where azalea growers and the public are devoted to the Belgian hybrids as well as the South Indica strains. This is a chance for us to get some new ideas.

The varieties at Quail Gardens are a welcome addition and consist of the following: Avenir, Fashion, Duc du Rohans, Pink Pearl, Red Ruby, Light Pericat, Copperman, Sagittarius, George Taber, Blushing Bride, Flamingo, Grace Freeman, Gorgeous, Sweetheart, Freedom , Seraphim, Dorothy Gish, Greeting, Paul Schaeme, Eros, Angelica, Eric Schaeme, Treasure, Dr. Bergman and Shinnyo nc Tsuki.

This azalea variety is soft pink with cinnamon freckles.

Rosalind Sarver is the proprietor of a nursery which carries her name. She specializes in azaleas and cannas.

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What more appropriate gift for this special Sunday than a living gift plant? Most can be planted in the garden, or grown indoors, to serve as a constant reminder of your thoughtfulness.

It is true that Chrysanthemums in full bloom, Azaleas, Hydrangeas Cyclamen, fancy-leafed Caladiums and African Violets are favorite gifts for Mother's Day. Chrysanthemums, after the blooms have faded, may be cut back to six inches and set-out in a sunny garden spot, where they'll flower again this fall. African Violets, placed near a north or east window, will flourish and bloom indoors throughout the year. Azaleas, Caladiums, Hydrangeas and Cyclamen may be planted in the garden for continual enjoyment. All prefer more shade than sun.

Many flowering plants are in profuse bloom now. Don't overlook such gift possibilities. Perhaps Mom would thrill to a hanging basket variety which trails of cascades its floral beauty from on high. Other choices are the many easy-to-grow indoor foliage plants which enhance the decor of Mother's place.

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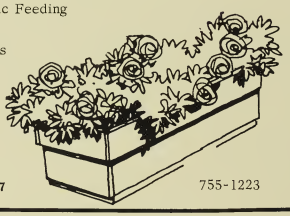

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LOPHORTYX CALIFORNICUS

DALE T. WOOD HARRY BEDFORD, photo

WHIRRR!!! In a dramatic instant the scene opened and closed on my first sighting of California Quail. It was autumn, 1909, on a dusty road in the midst of a lovely wild canyon, with oak forests and tree shaded stream. How green! With surrey and team from a livery stable (few autos were around in those days) our family was on an outing to explore the back-country.

At that time I was only seven, but an older brother already had aroused my interest in nature. I had listened to his exciting talk about the shrewdness of quail in thwarting the hunter's efforts to bag this tasty gamebird for table fare.

Quail have several unique traits which serve to protect them from their enemies. They may "freeze" upon alarm, assuming a high degree of invisibility. Their sensitive "panic button" acts as an emergency apparatus if an enemy approaches too closely, producing the noisy blue-gray explosion that momentarily disorganizes a wildcat or fox just as it does a human hunter. After bursting off the ground with a whirring noise, the quail flies a short distance at top speed, then lands at a fifteen mile an hour run, body uniquely erect, then quickly disappear into cover and safety.

If danger approaches more leisurely, advance notice will elicit some discreet staccato ticks from the leader, and the covey quietly melts into the nearest grass or bush cover.

At age eight came my first discovery of a quail nest. The eggs just recently had hatched. The unusual site for this nest was a large rusted can laying among debris dumped into a ditch. Grass material formed a cozy, secure nest to accomodate the dozen or more eggs—now empty shells. Years later I found a quail hen incubating a full set of eggs in a roadrunner's old nest about two feet above ground in a bush extending well over the edge of a pond. However, grass or weedy growth in a rather open situation is the most typical environment for a quail's nest.

Eggs of *Lophortyx californicus* average about one and a quarter inches long and just under an inch wide. The cap of the larger end is much flatter than that of almost all other eggs. From the circle of the greatest dimension, the shape becomes conical rather than oval. This also is the characteristic shape of the eggs of several other of the thirty-three American quail species, indigenous from Canada thru South America, and of the ninety-five species scattered throughout the Old World.

Typical of most fowl-like birds—chickens, ducks, pheasants, etc.—setting begins after the quail hen has laid her last egg. Incubation requires three weeks,

during which period the female leaves the nest only for short feeding periods, in the company of her mate. I once knew of a setting female which was killed by a cat. The male continued the incubation.

Among birds, the baby quail is unequaled in the instinctive skill of neatly cracking the egg shell. When he decides to hatch, he spirals in his shell and works his small beak around in the egg along the line of greatest bulge until the shell neatly separates with but slight irregularity. Matching halves can often be fitted back into an almost perfect egg.

If you've never seen a pair of quail with young, you have yet to see one of nature's cutest displays. Quail Gardens is recommended for this display from about mid-April to late June. Quail commonly nest twice each year. With patience and luck, you may catch a glimpse or a photo of one of the dozen or so quail families which constitute the permanent quail population of Quail Gardens. Late afternoon is most likely, but anytime in the nesting season you may see a male perched in the chaparral, from which position he repeats a one-note song of assurance to his mate that is incubating the eggs in the nest which is hidden nearby. After the eggs have hatched, the proud stance of the wary parents leading their downy fluffs, their solicitous clucking the family together for a scratched tid-bit, and the shower of sharp staccato clucks upon suspicion of danger, are all chance glances into the affectionate relationship between members of a quail family.

California Quail are stay-at-home bodies. If their range remains undisturbed, and if enemies do not molest, a covey will inhabit its restricted home range eternally. In fact, this seems true of all American quail species. Migration only occurs in response to lack of food, water, or cover requirements. In contrast, many Old World species instinctively migrate. For birds not considered adapted to long flight, the migration of Egyptian and related quail species across the Mediterranean Sea, between Europe, Asia Minor and Africa seems incredible.

To name a wild creature more agreeable to man would be difficult. *L. californicus* rarely feeds on man's farm crops; a few complaints from grape growers about closes the case against them. They are strikingly handsome, and of endearing behavior. They eat weed seeds, some green foliage and insects. One was found to have swallowed a small snake. Bird seed attracts them onto our lawn. They enjoy dust baths, but have never used our ground-level bird bath. For years, a large covey would join the chickens at evening feeding time in the barnyard of the Spooner Ranch, south of Morro Bay—now Montana de Oro State Park.

Raising quails in a domestic situation, without their parents, seems difficult. I once had a bantam hen hatch some, but apparently the quail chicks did not respond to her signal system. Some wandered off, and others were eaten by bluejays.

When forced to change foraging area, an adult covey may fly, wings alternately whirring and sailing, up to half a mile in sustained flight. A semi-arid mix of chaparral and grassland with a bit of water is ideal. Any altitude from sea level to 3,000 feet suits *L. californicus*, but the species is remarkably adaptive, abounding in seven sub-species from the damp Washington coast and south to the tip of arid Baja California and Catalina Island.

When introduced to New Zealand's North Island in the late 1800's, the California Quail flourished and is now widely abundant. Conversely, introductions of Bob Whites into the same area receded to small local populations.

The worst enemy of the California Quail is the Cooper Hawk, often called Quail Hawk or Blue Darter. It is our most numerous hawk. These feathered terrors can easily overtake a quail in its flight. Roadrunners, bluejays, crows and snakes eat quail chicks; cats and foxes also take their toll. Another enemy is man. When white settlers arrived in California, they quickly learned that breast of quail was delicious, and the large quail population was decimated. One hundred thousand quail were sold in San Francisco meat markets in a single year. Before legal protection could repair the damage, along came the age of urban sprawl and the bull-dozer. Both of the latter are eliminating survival possibilities in extended areas. Few quails remain within the mile-wide, highly developed coastal strip from Santa Monica to the Mexican border.

Quail Gardens must be one of their few remaining havens in this belt. It is a natural sanctuary for the bird for which the garden is named. While visiting that garden, observe, enjoy and appreciate the quail just as you do the plant life.

Dale T. Wood, lifelong amateur ornithologist and resident of coastal California, has been interested in the development of Quail Gardens from its beginning. The author credits Dr. Benton Owen, who has traveled widely over three continents photographing birds, with research assistance. Both are Directors of Quail Gardens Foundation, Inc.

The Carob Crusade

IN THE SEMIARID SOUTHWEST

J. Eliot Coit and Walter Rittenhouse

IN THE EARLY 1880's, it was customary, in most drugstores, to have on the counter a row of large glass jars containing gumdrops, stick candy, licorice sticks and carob pods, all popular with the kids. Mothers with teething babies found that half a clean carob pod was good for them to gnaw on, and it tasted good. An occasional seed did not matter. These carob pods were all imported from Europe.

Later on Mr. Blatchford of Waukegan, Illinois heard about carob powder being widely used in Europe to cure or control enteritis in babies. He tried that for the "scours" in newborn calves at dairies. It worked so well that for many years he imported large tonnages of carob pods from Europe and operated the Blatchford Calf Meal Company.

The first known importation of carob budwood of an improved European variety was made by William Hertrich of San Marino who secured the Casuda variety from Portugal, in April 1907, and propagated it successfully at the Huntington Botanic Garden in San Marino. A large bearing specimen of this was seen in 1965. Also George Roeding, a nurseryman, secured budwood from Europe and used it on seedling trees at his home ranch near Fresno. The writer recently examined two of the remaining trees, found several of the old weather-beaten name tags, but apparently none of the buds survived.

A Mrs. Bolster, at her old home in Iowa, after eating a carob pod, planted the seeds in a can. After growing a little tree in the house, she later brought it with her to California and planted it by her new home at Rialto, near San Bernardino. This tree grew to a large size and bore heavy crops of excellent fruit. It happens to be an hermaphrodite, bearing both male and female flowers on the same tree, and is self-fertile. J. S. Armstrong of Ontario secured budwood from this tree and propagated it by budding. He sold a large number of these budded trees throughout southern California, many of which remain to this day. He named it "Bolster" after the original owner.

About 1922, a few large commercial plantings of seedlings were made in southern California. The largest and most important of which was the Cornell-Holmes planting of almost 1,000 acres on high desert land six miles northeast of Riverside where average annual rainfall is about nine inches. The only water available was from one small well, barely enough to fill basins around newly planted trees.

George Southard had a sizable carob nursery, near Roselawn Cemetery in Los Angeles. Southard grew only carobs and enjoyed an active demand for trees for shade and avenue planting. In order to get a very large order from Cornell-Holmes he developed the "splint" method of propagation. Four building laths were nailed together to form a tube thirty inches long. After the tubes had been soaked in mild nitrate solution, they were filled with a heavy type of soil, stood in racks almost upright and freshly germinated carob seeds planted in the top of each. When the taproot grew down the full length of the tube they were ready for planting in the field. The idea was to get the root so deep in the ground that, after one surface tank watering, they could utilize subsoil moisture. This uncanny system worked after a fashion, and was extensively described in sales advertising.

Several years later the Metropolitan Water District Engineers decided that the high area near Arlington was the most suitable site for the large reservoir or lake at the terminus of the main line of the future Colorado River Aqueduct, from which water was to be distributed throughout southern California. After completion of the lake (Lake Mathews) a part of the carob planting, about sixty acres, was not needed and left outside of the well guarded fence around the lake. During 1968, we found a male tree in this planting which showed exceptionally early and late heavy bloom. It was named "Holmes". Buds were taken and top-worked on—tree No. 12 in row No. 4 at the Carob Demonstration Orchard. It is now a fine large male tree attracting many bees when in full bloom. Budwood of this tree has been included in variety collections sent to many foreign countries.

The El Molino Mills at Alhambra, operated by three brothers, became interested in carob products about 1940. Carob pods from selected seedling shade trees on the streets of nearby towns were used for experimentation. After some improvisation of machinery, seeds were removed, the flesh thoroughly dried and ground into fine powder. This began to be used for drinks, candies, cookies and various additions to cookery. Soon carob powder became widely used as a substitute for chocolate by many who were allergic to chocolate. It was also for sale in many drugstores , under proprietary names, as a cure for enteritis in babies. Carob molasses is also made from the seeds.

During the fall of 1948, it was decided that the logical way to promote interest in carob culture in southern California would be to establish a demonstration orchard to show the value of this tree. It would demonstrate control of soil erosion, production of livestock feed and miscellaneous medicinal and industrial uses. The ability of this tree to thrive and produce crops without irrigation where normal annual rainfall is twelve inches or more fits it for use on thousands of acres of foothill drylands.

After many days of search for a suitable location, an eleven acre tract was bought on Buena Creek Road between Vista and Twin Oaks Valley. The soil is similar to that on surrounding foothills, commonly used for citrus and avocados with irrigation. The land had long been used for dry farming of lima beans until damaged by erosion and morning glory infestation.

In the spring of 1949, 214 seedling carob nursery trees from twelve to eighteen inches tall were purchased and planted fifteen feet apart on contour rows. This spacing was entirely too close for commercial carob production, but it proved adequate for variety testing, propagation and top-working research. Lack of rain and land preparation operations, caused the surface soil to be extremely dry. The trees were planted in July in small temporary basins and watered twice with a tank wagon. For twenty years no other water was given these trees, with one exception. In 1965, in order to note results, row No. 4 was furrow irrigated twice in the summer, using water from the nursery outlet. No effect resulted from this test.

Previous to 1954 no carob had been commercially produced in the United States. The annual importation of carob products into the U.S. then amounted to more than $5,000,000 at port of export. At that time our efforts to establish commercial carob culture in the semi-arid Southwest appeared fully justified.

From carob seeds is made a gum, known in commerce as "Tragasol". It is in demand throughout the world for a long list of industrial uses as well as an eupeptic stabilizer for many types of food. The manufacturing process of this product is complicated and includes certain trade secrets as well as expensive machinery. Therefore American manufacturers of carob products do not at this time buy whole carob pods from growers. At present there is no suitable outlet for locally grown carob except as feed for riding horses, for which it is excellent.

At the time the so-called "Carob Crusade" was begun, advocacy and encouragement of commercial carob culture on the foothills in southern California was logical, but subsequent rapid increase in population and real estate speculation caused a rapid rise in land value. Land prices reached a point where commercial carob culture is no longer economically feasible. Carob nurserymen reduced stock of budded trees to supply only home gardens and shade tree planting. Interest in dry land carob culture is not likely to revive for many years. (Not until most of the available irrigation water is required for domestic and industrial uses at a higher price than farmers can afford. Then, interest in dry land carob culture should revive. Our work introducing and testing the best varieties and cultural methods may then be used to its best advantage.)

At the present time, most of the trees in our Demonstation Orchard near Vista are in good condition and bearing. No cultivation has ever been done, but grass and weeds have been kept mowed for fire protection. A careful record has been kept of everything done at each tree space.

Looking toward the future when the orchard land may be occupied by housing subdivisions, and in order to preserve for future generations a supply of budwood of a few of the best of these varieties, well grown budded specimen trees of six varieties were established permanently on public property. Arrangements were made for the planting and permanent care of these two locations: the University of California Horticultural Arboretum at Riverside and the Quail Botanic Gardens at Encinitas. It is hoped these trees will serve as a supply of authentic specimens of carob fruits, and also to meet both domestic and foreign requests for budwood.

now is the time

—A Cultural Calendar of Care from our Affiliates—

NIBBY KLINEFELTER

BONSAI SOCIETY

Masao Takanashi

Now is the time

to water daily. Morning water is best. Soil must be well drained.

to check all plants for wires that might cut during the growing season. Remove all wires that cut into the bark.

to turn your bonsai specimens occasionally for even growth, as they reach for the sun.

to avoid getting maple foliage wet; it scorches in the sun.

to keep moss growing for decorating and dressing the soil.

CACTUS/SUCCULENT SOCIETY

Jim Stalsonburg

Now is the time

to get up and out to water your plants. Early morning watering enhances; flowers are closed and injury to delicate petals avoided. By mid-morning the garden is heady with fragrant bloom.

to take cuttings from your Christmas cactus and other succulents. Use at least three "leaves" with joint. Rest cutting for a day before plunging into damp sand. Hoyas root well and easily in water.

to root pads of Opuntias (the "prickly pear" cactus) to use as grafting stock later in the summer.

CAMELLIA SOCIETY

William Gibson

Now is the time

to plant. Camellias are dormant when in bloom, and are possible afterward.

to maintain watering. Do not let them dry out during this particularly dry year.

to prune when flowering has finished. After trimming away all dead wood, cut back to a growth bud, shaping as you go.

to fertilize lightly with cottonseed meal when new growth is noted.

DAHLIA SOCIETY

Mildred Middleton

Now is the time

to review planting instructions if you are late: Use a cup of bonemeal and a sprinkle of bloodmeal worked into the bottom of a six inch deep hole. Cover with a layer of soil and place tuber on its side (sprouts up), two inches from stake, cover with two inches of soil.

to use Larry Fisk's suggestion of "instant hot house"—a pot over the top to encourage slow starters; remove pot when sprouted.

to draw soil around as growth progresses, and to start watering when foliage develops. Remember, dahlias are thirsty plants.

to fertilize with a 4-10-10 product, a cup full to a plant once a month, after buds appear.

to guard against the leaf miners, thrips and aphids. Try a systemic early. If necessary to spray, use weak solution on tender new foliage.

EPIPHYLLUM SOCIETY

Bill Nelson

Now is the time

to select new epi's from the hundreds of varieties in bloom. Colors range from white through all shades of red. Hybridizers are even getting a little blue in the reds.

to continue watering and fertilizing with liquid fish until buds form, then switch to 0-10-10.

to stamp out aphids! Try spraying with 70% alcohol. Caution: never use an oil spray on epi's.

to prolong bloom, keep in the refrigerator. However, individual flowers last from several days to a week.

FUCHSIA SOCIETY

Mildred Murray

Now is the time

to continue watering and feeding. Change over to a high bloom liquid fertilizer for super blooms. Test soil to be certain it does not dry out but make sure

water flows freely through your containers.

to stop pinching about the first week in May to allow flowers to develop for the Del Mar Exposition.

to continue battling the white flies, mealies and inchworms, or "loopers."

ORCHID SOCIETY

Ione Maloney

Now is the time

to divide and repot cattyleas when roots expose themselves over the sides of pot. Wash off old potting material with a good stream of water from the hose. Cut away brown roots. Leave three to four pseudo-bulbs to each division. Treat cuts with fungicide.

to combine equal parts redwood bark and fine redwood-orchid potting mix. Add one cup perlite for each gallon. Put in laundry basket, spray with hose to remove loose dust, and immerse basket in tub. Soak overnight. Drain well before using. No need to water for several weeks, but do mist plants.

to disinfect clay pots in tub of water with one cup of household bleach. Soak several hours or preferably overnight. Or use plastic pots.

to divide the cymbidiums. Remove "back bulbs" from center when they are crowded, using two to three to a pot. (Local nurseries carry cymbidium potting mix.)

ORGANIC GARDENING

P.F. "Kay" Canady

Now is the time

to outwit pests by companion planting for hot weather vegetables. Insects breathe through their pores and are either attracted or repelled by odors. Study and use multiple combinations to confuse them.

to repel the tomato-hookworm butterfly with garlic, chives and onions. Nasturtiums attract aphids but repel the white fly. Marigolds keep away nematodes.

to plant beans and potatoes together as each wards off the beetle of the other. Beans can thrive with carrots, cauliflower and beets. Asparagus, parsley and tomatoes do well together. Strawberries are better pollinated with borage nearby to tantalize the bees.

to pulverize dried peppers and shake from flour sifter on dewy foliage.

to add garlic and onion to red peppers in a blender with water and non-detergent soap for a good all-purpose spray. Allow mash to stand a few hours, then strain and use mixture as spray. Bury the mash among the plants. Use spray often.

ROSE SOCIETY

Frank Battad

Now is the time

to control thrips, mites and other pests. Spray frequently with diazinon while roses are still in bud. Thrips work their way between the petals and disfigure them.

to water more often: overhead water occasionally in the morning, and irrigate often.

to feed regularly every two weeks with a good commercial rose formula.

to pinch outside buds of hybrid teas while still small. Reverse for floribundas—remove the largest bud which is the terminal one. The others will open all at once and cover the "stump."

THE PLANTSMEN IN THE PARK tell us

Now is the time

to note the varigated foliage of Hydrangea opuloides, var. Stella Albo. That delphiniums behave in true perennial fashion and do well here.

to check the different varieties of Abutilon or Flowering Maple, which can be grown in containers or as a high ground cover in shady areas and even trained into a standard.

to learn that wisterias can be trained into tree form by close planting several. They grow together into a natural graft, making the turnk. Rub off new growth as it appears along trunk and prune laterals for head. These also may be container grown.

to fertilize ferns with a half-strength liquid 10-5-5 on the acid side. Use distilled water whenever possible for the more delicate ferns.

to take cuttings of hibiscus and spirea as soon as the new wood has slightly hardened. Nip tip of six inch cuttings and remove half of each leaf to reduce transpiration. Root in damp sand or perlite, and sponge rock. (Soak and drain perlite, then pack down level with thin layer of vermiculite on top before inserting cuttings. Bottom water.)

to remember that lotus roots cannot turn corners and must be planted in round containers. The lotus is considered "the king of the water plants."

GARDENIA GROWING

GEORGE JAMES

GARDENIA PLANTS FRUSTRATE many gardeners, because they do not grow with the same care given to the majority of shrubs in a garden. Thus, they have acquired the reputation of being difficult to grow, The following thoughts are offered in the hope that more people can acquaint themselves with the needs of these delightful plants, and will then be able to enjoy the beauty and fragrance of gardenias in their own garden.

The three gardenia varieties which commonly are grown in the San Diego area are described herewith; the environmental needs of the three varieties are identical in all cases. *Gardenia jasminoides* 'Mystery' is sometimes called "Cape-jasmine". Its flowers are the largest, three to four inches across, and the flowering period is May through September. The plant, when grown in the soil, is from four to five feet tall and spreads nearly as far across. The foliage is dense, the leaves large and deep green. *G. j.* 'Veitchi' is smaller in flower, plant size and leaf size, but it bears many more flowers than the 'Mystery'. It is reputed to be somewhat easier to grow, and when grown in a favored location, it will flower a bit longer. *G. j.* 'Stricta Nana' is a dwarf gardenia whose plant will grow about ten inches tall and spread two feet across. It has flowers and leaves which are much smaller than either of the other two varieties. The flowers of all three varieties have the same exotic fragrance.

The soil is most likely to be the limiting environmental factor in growing gardenias. They require perfect drainage in the soil and suffer seriously if the soil retains water too long. Often the soil in the garden is light and friable on the surface, but it is underlaid with a stratum of soil which prevents a quick escape of water. A gardenia grown under such conditions may be lost from root decay, even several years after planting, due to over-irrigation, or in winters of more than normal rainfall. Where such a soil condition exists, one that is not very well drained, gardenias can be grown in containers, or in raised planters. In this manner drainagewater can escape onto the surface of the garden soil.

Gardenias also need a soil that is acid, which is not the normal soil condition in San Diego County. Acid conditions can be created by the addition of acid-forming humus to the planting hole and root area. Peat moss is the best material to use, but when available, oak leafmold can be used. A soil amendment made from redwood will also serve. Use equal parts of the soil amendment and garden soil, well mixed. If the soil at hand is of a clayish nature, use one part of the soil, one part of sand, and two parts of soil amendment. The soil can be kept acid, after planting. by the use of a cupful of soil sulphur over the root zone every six months.

The gardenias are native to warm regions of the Eastern Hemisphere, and in our coastal area, do well in full sun. In locations further inland, partial shade is necessary, especially during the hottest part of the day. In the coastal area, locations which are warmer will extend the growing and flowering season. Placing plants so that they can benefit from heat reflected off a wall or paving is an example. During the cold months of the year, it is normal for gardenias to have leaves which turn yellow and drop off and buds which blacken and fall.

A soil that is moist at all times, yet does not remain saturated for very long after irrigation, is ideal for gardenias. They should not be watered until the soil has become nearly dry. Then, enough water should be used to wet the soil to a depth of two feet. They enjoy having their leaves wet, especially during the summer. As washing removes dust, the entire appearance of the bush is improved. The water need of gardenias is different from many of the other plants found in gardens. For this reason, it is safer to plant them where they can be watered as their need becomes evident—rather than watering to meet the needs of the

companion plants.

Gardenia blossoms are produced on new growth. Seven monthly feedings, during the seven warmest months of the year, will enable them to develop the maximum amount of new growth and flowers. An acid fertilizer or "Camellia Food" is the most suitable product to use, as they supply all the necessary food elements and contribute to the acidity of the soil. If a liquid form is used, more frequent applications would be desirable. The liquid form is safer to use on plants in containers.

Gardenias may be pruned or pinched at any time to control growth which would spoil the shape or balance of the plant. They may be heavily pruned in the spring, just before growth starts, should it be necessary to reduce or reshape the plant. Such an operation will reduce the number of flowers for the following season. Older plants will be helped if small, weak, twiggy growth is cut from stems and branches. These divert food from the stronger shoots; such pruning results in larger, better blossoms. This is best done in the spring before growth starts.

Gardeners who do not have soil suitable for growing gardenias will find these plants to be willing container subjects. Use a soil similar to that described for garden growing, and select a suitable location for the container. Be sure there are enough drainholes so water will escape from the container quickly. Use screen, broken pot, or similar material over the drainholes to prevent soil from being compacted and plugging the drains. More water will be needed when plants are in containers, as is also true with fertilizer. Water draining out of the pots will carry some of the plant food with it. Plants in containers will not grow as large as those in the ground, and container plants will not need a great deal of pruning—except to control the shape and remove the weak wood.

The *G. j.* 'Stricta Nana' is an excellent plant for pots or hanging baskets. With a little training, it can be encouraged to drape over the side.

A mulch around gardenias improves the appearance, reduces the need of watering, contributes to the improvement of the soil and discourages the accumulation of alkaline salts on the surface of the soil. The ground bark, of a suitable size for the area being mulched, is the most attractive material. Other acid forming materials, such as redwood chips, peat moss, or pine needles may be used.

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8:00 a.m. to 5:00 p.m.

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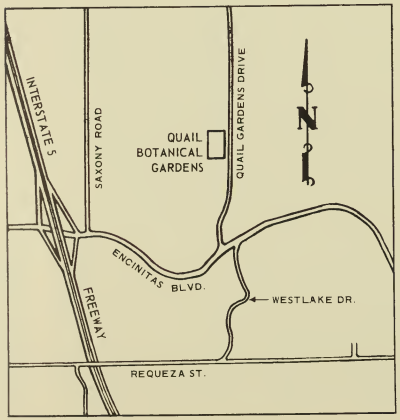

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HORTICULTURAL FEATURES
PLANTS IN FLOWER

Abutilon Group – "Flowering Maple"
Aloes and other succulents
Athanasia parvifolia – "Coulter bush"
Azalea varieties - Collection beneath Cork Oaks
Bromeliad varieties – Collection
Caesalpinia echinata – "Brazil wood"
Calliandra inequilatera – "Pink Powder Puff"
Camellia varieties – Collection
Ceanothus – "Calif. Wild Lilac"
Cercis canadensis – "Redbud"
Cestrum elegans – "Scarlet Jasmine"
Chiranthodendron Pentadactylon
Cistus varieties – "Rock rose"
Deutzia scabra – "Pride-of-Rochester"
Duranta stenostachya – "Brazilian Sky-flower"
Echium fastuosum – "Pride of Madeira"
Erythrina americana – "Coral tree"
Hebe-Veronica varieties
Jacaranda acutifolia – "Green-ebony tree"
Linaria maroccana – "Toadflax"
Malvaviscus mollis – "Turk's Cap"
Michelia fuscata – "Banana shrub"
Phaedranthus buccinatorius – Red-orange trumpet vine
Protea varieties – Collection
Puya alpestris; Puya cerulea – Pineapple family, steel-blue flowers, orange anthers
Raphiolepis varieties – "Indian Hawthorn"
Scilla peruviana – "Jacinth"
Stenolobium stans – "Yellow bells"
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Brewer's Blackbird .... Bullock's Orioles

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Pres.: Miss Myrle Patterson 224-1572
4310 Piedmont Dr., S.D. 92107

BERNARDO BEAUTIFUL & GARDEN CLUB
First Wednesday, 1:00 Seven Oaks Community Center, Bernardo Oaks Dr., Rancho Bernardo
Pres.: Mr. Irvin C. Baechtold 487-2103
12175 Pastoral Rd., San Diego 92128

CARLSBAD GARDEN CLUB
First Friday, Conference Room, Public Library 1:30 p.m.
Pres.: Mrs. Floyd Anderson 729-7610
3595 Catalina Drive, Carlsbad 92008

CHULA VISTA GARDEN CLUB
Third Wednesday, Chula Vista Woman's Club 357 "G" St., 1:00 p.m.
Pres.: Mrs. Harold Howell 479-5188
Box 644, Bonita 92002

CITY BEAUTIFUL OF SAN DIEGO
Pres.: Mrs. Raymond E. Smith 488-0830
4995 Fanuel St., Pacific Beach 92109

CORONADO FLORAL ASSOCIATION
Meets 1st Tuesday, Red Cross Bldg., 1113 Adella Lane
Pres.: Capt. George L. Heap 435-3929
620 First St., Coronado 92118

CROSS-TOWN GARDEN CLUB
Third Tuesday, Knights of Columbus Hall, 3827 43rd St., S.D. 92105, 8 p.m.
Pres.: Mr. Charles Williams
3865 41st Street, San Diego 92105 284-2317

CROWN GARDEN CLUB OF CORONADO
Fourth Thursday, Red Cross Bldg., 1113 Adella Lane, 9:00 a.m.
Pres.: Mrs. John A. Copeland 435-5742
1121 Alameda Blvd., Coronado 92118

DOS VALLES GARDEN CLUB
Meets 2nd Tuseday, Alt. Pauma Valley and Valley Center 1:30 p.m.
Pres.: Mrs. E. L. Lamoureaux 745-0243
31643 Oak Glen Rd., Valley Center 92082

ESCONDIDO GARDEN CLUB
3rd Friday, Woman's Club, 240 So. Bdwy., 1:00 p.m.
Pres.: Mrs. A. Ray Jewell 746-4861
1013 E. Fifth Ave., Escondido 92025

FALLBROOK GARDEN CLUB
Last Thursday, Fallbrook Woman's Clubhouse, 1:30 p.m.
Pres.: Mrs. James DeShazo 728-7423
152 Emilia Lane, Fallbrook 92028

GREEN VALLE GARDEN CLUB, POWAY
Meets 4th Thursday, 9:30 a.m. Homes of members
Pres.: Mrs. Charles E. Chandler 487-2203
13627 Jackrabbit Rd., Poway 92064

GROSSMONT GARDEN CLUB
Second Monday, 10 a.m.
8155 University Ave., La Mesa
Pres.: Mrs. Albert W. Lawrence 466-4616
4350 Yale Ave., La Mesa 92041

HIPS and THORNS
Meets at Members' Homes Quarterly
Pres.: Mrs. Eugene Cooper 295-7938

IMPERIAL BEACH GARDEN CLUB
3rd Tuesday, Imperial Beach Civic Center 1:30 p.m.
Pres.: Mrs. Roman Rolphes 424-7487
1228 Seventh St., Imperial Beach 92032

LA JOLLA NEWCOMERS (Garden Section)
Third Wednesday, 10:00 a.m., Selected Gardens
Chairman: Mrs. Don Sanson 454-4616
1466 Torrey Pines Rd., La Jolla 92037

LAKESIDE GARDEN CLUB
3rd Monday, Lakeside Farm School, 7:30 p.m.
Pres.: Mrs. Lucy May Carender
9282 Riverview, Lakeside 92040

LA MESA GARDEN CLUB
3rd Thursday, La Mesa Women's Club, 1:00 p.m.
Pres.: Mrs. Val Sexton
9144 Johnson Ave., La Mesa 92041 466-0047

LEMON GROVE WOMAN'S CLUB (Garden Section)
First Tuesday, Lemon Grove Woman's Club House, 1 p.m.
Pres.: Mrs. D. D. Lairsey 466-2840
8285 Palm Ave., Lemon Grove 92045

MISSION GARDEN CLUB
Meets First Tuesday, Church of Rel. Science
4102 Marlborough Ave., S.D. 92116, 8:00 p.m.
Mrs. Vera Eimar 477-5344
1129E 16th St., National City 92050

NATIONAL FUCHSIA SOC., ENCINITAS BRANCH
3rd Friday, 7:30 p.m., Home Federal Bldg., Encinitas
Pres.: E. Grove Teaney 726-3728
826 S. Santa Fe Ave., Sp. 23, Vista 92083

NORTH COUNTY ROSE SOCIETY
1st Tuesday, 7:30 p.m., John Landis Park (Cedar & Lewis) Oceanside
Pres.: Mr. Paul B. Marner 745-0797
.525 W. El Norte Parkway, Sp. 31, Escondido 92025

NORTH COUNTY SHADE PLANT CLUB
Second Sat., 1:30 p.m., Home Federal Bldg., Encinitas
Pres.: Mrs. Helen Rose 756-2023
Paseo Delicios, P.O. Box 828, Rancho Santa Fe 92067

O. C. IT GROW GARDEN CLUB
Second Wednesday, S. Oceanside School Auditorium, 7:30 p.m.
Pres.: Mr. Michael J. Hardick 722-3583
1409 Division, Oceanside 92054

PACIFIC BEACH GARDEN CLUB
Meet second Monday, 7:30 p.m. Community Club House, Gresham and Diamond Sts., Pacific Beach
Pres.: Mrs. Arthur Berthelsen
1434 Grand Ave., San Diego 92109 274-6081

PALOMAR CACTUS & SUCCULENT SOCIETY
Third Saturday, 1 p.m., Palomar College Foreign Language Building, Room F22
Pres.: Mr. Harold Marino 748-2563
14157 Ezra Lane, Poway 92064

PALOMAR ORCHID SOCIETY
3rd Thurs., 7:30 p.m., Vista Rec. Center, 160 Rec. Dr., Vista
Pres.: Mr. Jess Schiffer 724-4743
872 Newport Dr., Vista 92083

POWAY VALLEY GARDEN CLUB
2nd Wednesday, 9:30 a.m. "Haley's," 13519 Poway Rd.
Pres.: Mrs. Philip Heine 748-4876
13010 Neddick St., Poway 92064

QUAIL GARDENS FOUNDATION, INC.
230 Quail Garden Drive, Encinitas, Calif. 92024
Mrs. M. J. von Preissig 286-8818
5071 55th St., San Diego, Calif. 92115

RANCHO SANTA FE GARDEN CLUB
Second Tuesday—Club House, 2:00 p.m.
Pres.: Mr. Wilfred S. Teetzel
Box 1314, Rancho Santa Fe 92067

SAN CARLOS GARDEN CLUB
Fourth Tuesday, San Carlos Club, 6955 Golfcrest Drive
Pres.: Mrs. Stephen J. Koonce 286-1979
6732 Golfcrest Dr., San Diego 92119

SAN DIEGO BROMELIAD SOCIETY
1st Thursday, 8 p.m. Porter Hall Clubhouse (8425 Univ.), La Mesa
Pres.: Mrs. Don Birchell 466-7631
6070 Sarita, La Mesa 92041

S.D. CHAPTER CALIF. ASS'N NURSERYMEN
Second and Fourth Thursday, 7:30 p.m.
Pres.: Mr. Moto Asakawa 297-4216
5115 Linda Vista Rd., San Diego 92110

S.D. CHAPTER NATIVE PLANT SOCIETY
Pres.: R. Mitchel Beauchamp 477-8669
1841 E. 16th St., Apt. B, National City 92050

SAN DIEGUITO GARDEN CLUB
Third Wednesday, Seacoast Savings Building, Encinitas, 10 a.m.
Pres.: Mrs. Dorothy Reavell
1222 Santa Fe Dr., Encinitas 92024 753-4908

SAN MARCOS GARDEN CLUB
Pres.: Mr. E. C. Pferdner
1221 San Julian Dr., San Marcos 92069 744-0226

SAN MIGUEL BRANCH, AMERICAN BEGONIA SOCIETY
Second Wednesday, Porter Hall Clubhouse, La Mesa (8425 University) 8:00 p.m.
Pres.: Mrs. Peter P. Lee 239-3169
1852 31st St., S.D. 92102

SANTA MARIA VALLEY GARDEN CLUB
Second Monday, Ramona Women's Club House, 5th and Main, 9:30 a.m.
Pres.: Mrs. Winifred Posik 789-0531
723 E St., Ramona 92065

SANTEE WOMEN'S CLUB Garden Sec.
Pres.: Mrs. John Ainsworth 488-3342
844 Fanita Dr., Santee 92071

VISTA GARDEN CLUB
First Friday, Vista Rec. Center 1:00 p.m.
Pres.: Mrs. L. G. Farrell 724-6019
735 Mesa Ave., Vista 92083

VISTA MESA GARDEN CLUB
Second Tuesday, 7:30 p.m. Family Association Center
Pres.: Mrs. D. R. Gardiner 277-3635
8003 Linda Vista Rd., San Diego 92111

CALIFORNIA GARDEN
San Diego Floral Association
Casa Del Prado, Balboa Park
San Diego, CA 92101

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